



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,595	09/26/2001	Don Brunnett	3123-321	3497

7590

04/21/2005

David M. Sigmond
Maxtor Corporation
2452 Clover Basin Drive
Longmont, CO 80503

EXAMINER

DUNCAN, MARC M

ART UNIT	PAPER NUMBER
----------	--------------

2113

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/965,595

Applicant(s)

BRUNETT ET AL.

Examiner

Marc M. Duncan

Art Unit

2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-190 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 71-190 is/are allowed.
- 6) ☒ Claim(s) 36,37,41,45,46,48-50,52,54,55,57-60,64,68 and 69 is/are rejected.
- 7) ☒ Claim(s) 38-40,42-44,47,51,53,56,61-63,65-67 and 70 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2004 and 28 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

43

FINAL REJECTION

Status of the Claims

Claims 36, 37, 45, 46, 57, 58, 59, 60, 68, 69 are rejected under 35 U.S.C. 102(e) as being anticipated by Lenny et al.

Claims 48-50, 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenny et al. in view of Rothberg (106).

Claims 41 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenny et al. in view of Ono et al.

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenny and Rothberg (106) as applied to claim 49 above, and further in view of Ono et al.

Claims 38-40, 42-44, 47, 51, 53, 56, 61-63, 65-67 and 70 are objected to.

Claims 71-190 are allowed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 36, 37, 45, 46, 57, 58, 59, 60, 68, 69 are rejected under 35 U.S.C. 102(e) as being anticipated by Lenny et al.

Regarding claim 36:

Lenny teaches a monitor that determines whether any user command from the computer system is pending or the computer system is idle in col. 2 line 67-col. 3 line 1.

Lenny teaches a processing module configured to perform the manufacture test process on a disk of the disk drive, wherein the manufacture test process is performed on a portion of the disk for the first time and in a particular manner depending on whether the computer system has issued the user command or the computer system is idle in col. 2 line 67-col. 3 line 7 and col. 8 lines 64-65. It is inherent to the function of the Lenny reference that the test will be performed at least a first time after the drive has been installed in the computer system. It is also true that the test is performed depending on the status of the computer system, i.e. idle or not. See above citations.

Lenny teaches a controller that tracks performance of the manufacture test process such that counters stored in a memory of the disk drive indicate which portion of the disk has been processed by the manufacture test process in col. 6 lines 31-36.

Regarding claim 37:

Lenny teaches wherein the manufacture test process including at least one of flaw mapping, embedded runout compensation (ERC) and final drive verification in col. 8 lines 64-65 and col. 9 lines 7-10.

Regarding claim 45:

Lenny teaches wherein a predetermined portion of the disk is processed by the manufacture test process before installation of the disk drive in the computer system, and the portion of the disk drive which has been processed is identified by the controller

in col. 1 lines 47-61 and col. 6 lines 31-36. The test result information is equivalent to the portions of the disk drive that have been processed.

Regarding claim 46:

Lenny teaches wherein any major flaw in the disk is detected before the disk drive is installed in the computer system in col. 1 lines 47-61. The purpose of the certification testing and burn-in are to detect any major flaws present before installation.

Regarding claim 57:

Lenny teaches a disk with spaced tracks for storing information in col. 1 line 40. A hard disk drive has a disk with a plurality of spaced tracks for storing information.

Lenny teaches a head that reads and writes information to and from the disk in col. 1 line 40. A hard disk drive has a head that reads and writes information on the disk.

Lenny teaches a processing module stored in the memory that performs a manufacture test process on the disk while the disk drive is installed and operating in a computer system in col. 4 lines 20-22. In order to perform the diagnostic tests, they must be stored in a memory.

Lenny teaches a controller that executes the manufacture test process on a portion of the disk for the first time in response to a predetermined condition of the computer system configured to control operation of the head when the computer system is idle in Fig. 1, col. 2 line 67-col. 3 line 7, col. 4 lines 47-55 and col. 8 lines 64-65. It is inherent to the function of the Lenny reference that the test will be performed at least a

Art Unit: 2113

first time after the drive has been installed in the computer system. It is also true that the test is performed in response to a predetermined condition. See above citations.

Regarding claim 58:

Lenny teaches wherein the memory is a read only memory (ROM) in col. 4 lines 53-55. The controller has a ROM that is available for storing data, such as the processing module.

Regarding claim 59:

Lenny teaches wherein the memory is a processed area of the disk in col. 3 lines 15-28. It is inherent in the function of a hard disk drive that a processing module or any data pertaining to an application program is storable on a processed area of its storage disk.

Regarding claim 60:

Lenny teaches the at least one manufacture test process includes at least one of flaw mapping, embedded runout compensation (ERC) and final verification in col. 8 lines 64-65 and col. 9 lines 7-10.

Regarding claim 68:

Lenny teaches wherein the disk drive performs the manufacture test process on a predetermined portion of the disk before the disk drive is installed in the computer system in col. 1 lines 47-61 and col. 6 lines 31-36.

Regarding claim 69:

Lenny teaches wherein the disk drive detects any major flaws in the disk before the disk drive is installed in the computer system in col. 1 lines 47-61. The purpose of

the certification testing and burn-in are to detect any major flaws present before installation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 48-50, 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenny et al. in view of Rothberg (106).

Regarding claim 48:

The teachings of Lenny are outlined above.

Lenny does not explicitly teach wherein the manufacture test process corrects errors detected on the disk. Lenny does, however, teach detecting errors using a self-test.

Rothberg (106) explicitly teaches wherein the manufacture test process corrects errors detected on the disk in Fig. 7 reference number "721."

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the correction teachings of Rothberg with the detection teachings of Lenny.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Rothberg (106) teaches that repairing errors after their detection allows a reliably performing drive and a drive with reliable performance is necessary to be competitive in the disk drive market in col. 1 lines 13-20.

Regarding claim 49:

Lenny teaches wherein the manufacture test process includes at least one of flaw mapping, embedded runout compensation (ERC) and final verification in col. 8 lines 64-65 and col. 9 lines 7-10.

Regarding claim 50:

Lenny teaches wherein the detected condition includes a user command pending from the computer system and the computer system is idle in col. 2 line 67-col. 3 line 1.

Regarding claim 54:

Lenny teaches performing the manufacture test process prior to installation of the disk drive in the computer system to identify a major flaw on the disk in col. 1 lines 47-61 and col. 6 lines 31-36.

Regarding claim 55:

Lenny teaches wherein a program for performing the manufacturing test process is placed in the memory before installing the disk drive in the computer system in col. 4 lines 20-22. The tests are run during manufacturing as well as after installation and therefore must be stored on the disk prior to manufacturing.

Claims 41 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenny et al. in view of Ono et al.

Regarding claims 41 and 64:

The teachings of Lenny are outlined above.

Lenny does not explicitly teach accessing memory to determine which cylinder was last processed, performing the ERC on the next cylinder and updating the memory to indicate completion of the ERC on the next cylinder. Lenny does, however, teach stopping and restarting the tests after interruption from a host command.

Ono teaches accessing memory to determine which cylinder was last processed, performing the ERC on the next cylinder and updating memory to indication completion of the ERC on the next cylinder in col. 2 lines 10-22.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the register of Ono with the test restart of Lenny.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because the register of Ono meets implicit need of Lenny. Lenny teaches restarting a test after host command interruption. It is an implicitly stated need in Lenny to store an indicator of where the test was stopped so that the test can be restarted after host command interruption.

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenny and Rothberg (106) as applied to claim 49 above, and further in view of Ono et al.

The teachings of Lenny and Rothberg (106) are outlined above.

Lenny and Rothberg (106) do not explicitly teach accessing memory to determine which cylinder was last processed, performing the ERC on the next cylinder and updating memory to indication completion of the ERC on the next cylinder. Lenny and Rothberg (106) do, however, teach stopping and restarting the tests after interruption from a host command.

Ono teaches accessing memory to determine which cylinder was last processed, performing the ERC on the next cylinder and updating memory to indication completion of the ERC on the next cylinder in col. 2 lines 10-22.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the register of Ono with the test restart of Lenny and Rothberg (106).

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because the register of Ono meets implicit need of Lenny and Rothberg (106). Lenny and Rothberg (106) teach restarting a test after host command interruption. It is an implicitly stated need in Lenny and Rothberg (106) to store an indicator of where the test was stopped so that the test can be restarted after host command interruption.

Allowable Subject Matter

Claims 38-40, 42-44, 47, 51, 53, 56, 61-63, 65-67 and 70 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior art was not found that explicitly teaches or fairly suggests performing one flaw mapping test if a user command is pending and a second flaw mapping test if the computer is in idle mode as outlined in claims 38, 51 and 61. Prior art was not found that explicitly teaches or fairly suggests performing one final verification test if a user command is pending and a second final verification test if the computer is in idle mode as outlined in claims 42, 53 and 65. Prior art was not found that explicitly teaches or fairly suggests testing a predetermined percentage of the tracks as well as every Nth one of the tracks prior to the drives installation in a computer system as outlined in claims 47, 56 and 70. Prior art was not found that explicitly teaches or fairly suggests testing on a first portion of the disk and not a second portion with the manufacture test process at the factory and the testing the second portion of the disk using the manufacture test process after the disk drive has been installed and is operating, subsequent to manufacturing at the factory as outlined in claims 71, 91, 111, 131, 151 and 171. These limitations are considered allowable only when taken in combination with all limitations of the base claims and any intervening claims.

Response to Arguments

Applicant's arguments filed 11/26/04 have been fully considered but they are not persuasive.

In response to applicant's argument that Lenny does not teach performing diagnostic tests on a portion of the disk for the first time after it is installed on the host computer, the examiner disagrees. Lenny teaches performing the tests on the disk after it is installed and it is necessarily true that the tests will be performed at least once after the disk has been installed. This performance of the test would, in fact, be equivalent to the "first time" that is outlined in the claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Art Unit: 2113

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc M. Duncan whose telephone number is 571-272-3646. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on 571-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

md


ROBERT BEAUSOLIEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100